

DISCUSSION OF THE AMENDMENT

Claims 1-20 are pending in the application. Independent Claim 1 is amended to state that the fractionating forms a product consisting of fraction a) and fraction b). Support for the amendment is found, for example, in Figure 1 wherein the fractionating is carried out in column 9 to provide an only an overhead stream (10) and a bottom stream (11). Independent Claim 1 is further amended for matters of form. The dependent claims are amended for matters of form and to conform with the amendment to independent Claim 1.

No new matter is added.

REMARKS

The Office rejected the claims of the present application as obvious over a patent to Mowry (US 5,567,860). Applicants traverse the rejection on the grounds that the Mowry process is substantially different from the process described in the present claims.

Present Claim 1 requires fractionating step to form a product which consists of two fractions, i.e., fractions a) and b). In contrast, Mowry discloses a process that includes a fractionating before a dissociating step. The fractionating step of Mowry produces at least three different streams, i.e., the streams produced by the Mowry butuanizer column (no. 28 in Figure 1 of Mowry). The Mowry butanizer product streams are identified by reference nos. 28, 48 and 50 in Figure 1. Product stream 28 includes C₄ hydrocarbons, methanol and dimethyl ether (column 10, lines 12-13 of Mowry). The debutanizer product stream 48 contains a mixture of MTBE and MSBE (column 10, lines 17-18 of Mowry). Product stream 50 from the Mowry butanizer includes C₄ oligomers and other materials for gasoline blending (column 10, lines 16-17 of Mowry).

In contrast, present Claim 1 recites a fractionating step that forms only two product streams, i.e., a fraction a) and a fraction b). This fractionating step is demonstrated in Figure 1 of the present specification where it is shown that only two product streams; namely, product streams 10 and 11 emanate from the fractionating column identified by reference no. 9.

Applicants submit that Mowry nowhere discloses or suggests carrying out a process that includes fractionating before dissociating wherein the fractionating forms only two fractions. Because the prior art relied on by the Office does not disclose or suggest all of the present claim limitations, the rejection should be withdrawn and all now-pending claims allowed.

The Office Action of January 29, 2008 stated that it would have been obvious to modify the process of Mowry by omitting a separation step. Applicants submit that it is readily evident that the process of Mowry is intended to minimize or reduce the formation of secondary ethers such as MSBE and their resulting butene products (see the Title and Abstract of Mowry). Mowry discloses a process in which MSBE must be withdrawn from the process in order to form a product stream of acceptable purity (e.g., a product stream having reduced amounts of n-butene). For example, column 3, lines 12-13; column 3, lines 48-56; column 4, lines 12-14; column 6, lines 3-5; column 6, lines 33-37; and the Examples of Mowry, all direct one of skill in the art to remove MSBE. In fact, the MSBE is withdrawn or removed from the Mowry process as a “drag stream”.

Applicants submit that it would not be obvious to modify Mowry in a manner that would change the amounts of MSBE present in any of the streams described in the Mowry process subsequent to the Mowry fractionating column. If Mowry recycled all of the MSBE-containing stream, the amount of undesirable n-butenes would increase and the thus formed Mowry product would not be desirable.

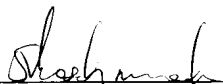
Applicants submit that the presently claimed process produces a product having a desirable composition without encountering the complications and multiple separations of the Mowry process. For example, Example 1 of the specification is an inventive example encompassed by Claim 1. The composition of the product obtained in Example 1 is described on page 13 of the specification. The ultimate product, i.e., isobutene, is described by its purity in the portion of the table on page 13 identified as column (9). It is readily evident that the isobutene is of high purity (96.87%) and that the amount of butene is very low (e.g., not detected). This may be compared with the results for the examples of Mowry which are substantially inferior. Table 1 in columns 11 and 12 of Mowry describe the composition of the product stream obtained by the prior art process. The column identified as

“Isobutene Column Overhead Product”) shows that the prior art process has an amount of n-butene of 432 ppm. This is substantially greater than the amount (i.e., not detected) formed by the process of the present claims.

For the reasons discussed above, Applicants submit that those of ordinary skill in the art would not be motivated to modify Mowry in a manner that reintroduced or recycled MSBE into the prior art process because doing so might raise the amount of n-butene formed by the dissociating step of the prior art process. Thus, the presently claimed invention is further patentable over Mowry.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.
Norman F. Oblon



Stefan U. Koschmieder, Ph.D.
Registration No. 50,238

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 08/07)